

ABSTRACT

The *luxA* and *luxB* genes from *P. luminescens* which encode for the luciferase protein of the bacterial luciferase system were modified to generate codon-optimized versions that are optimized for expression in mammalian cells. The codon-optimized bacterial luciferase enzyme system genes of the invention can be used to develop a mammalian bioluminescence bioreporter useful in various medical research and diagnostics applications.